

**Amendments to the Claims:**

1. (Currently Amended) An apparatus for managing incremental storage, the apparatus comprising:

a policy management module configured to set a storage management policy for storage capacity of a storage pool, wherein the storage pool is configured to store incremental storage data from an incremental storage operation on a primary volume and the storage pool comprises at least one storage volume allocated as a virtual volume;

a storage pool management module configured to monitor available storage capacity of the storage pool and to change the storage capacity in response to the storage management policy and the available storage capacity, wherein changing the storage capacity comprises allocating and de-allocating a storage volumes to a virtual volume the storage pool in response to the change to the storage capacity; and

an incremental log corresponding to the virtual volume, the incremental log configured to map a virtual address assigned to the incremental storage data to a physical storage address of the at least one storage volume of the storage pool.

2. (Original) The apparatus of claim 1, wherein the physical storage address comprises a volume identifier.

3. (Currently Amended) The apparatus of claim-2 1, wherein ~~the storage address further comprises a block identifier~~ the storage pool management module is further configured to allocate and de-allocate a portion of a storage volume to the storage pool.
4. (Currently Amended) The apparatus of claim-3 1, wherein ~~the block identifier is a logical block identifier~~ further comprising a read module configured to read data stored in the storage pool by way of a data path independent from a data path used to store the incremental storage data.
5. (Currently Amended) The apparatus of claim 1, wherein ~~the storage pool management module is further configured to monitor available space on the storage volumes~~ wherein the storage pool management module allocates and de-allocates storage volumes without user input.
6. (Original) The apparatus of claim 1, wherein the storage pool management module is further configured to allocate a second storage volume to the virtual volume in response to a reduction in available space on a first storage volume.
7. (Currently Amended) The apparatus of claim 1, wherein the storage ~~volumes~~ pool comprises at least one storage volume corresponding to a redundant set of storage devices.

8. (Original) The apparatus of claim 7, wherein the redundant set of storage devices comprises a RAID (Redundant Array of Independent Disks) storage array.
9. (Original) The apparatus of claim 1, wherein the incremental log comprises a lookup table.
10. (Currently Amended) The apparatus of claim 1, further comprising ~~a stripe map configured to store the storage address~~ the storage pool management module is further configured to increase the storage capacity in response to the available storage capacity increasing above a first storage capacity threshold and to decrease the storage capacity in response to the available storage capacity decreasing below a second storage capacity threshold.
11. (Currently Amended) The apparatus of claim 10, wherein ~~the incremental log is further configured to append a storage address mapping in response to a write operation wherein~~ the storage pool management module is further configured to de-allocate storage volumes wherein the de-allocated storage volumes are available for allocation to a virtual volume unrelated to the storage pool.

12. (Currently Amended) A method for managing incremental storage, the method comprising:

~~allocating storage volumes to a virtual volume;~~

~~appending a storage address mapping to an incremental log corresponding to the~~

~~virtual volume in response to a write operation; and~~

~~mapping a virtual address to a storage address in response to a read operation.~~

monitoring available storage capacity of a storage pool and changing a storage

capacity of the storage pool in response to a storage management policy and

the available storage capacity, wherein the storage pool is configured to store

incremental storage data from an incremental storage operation on a primary

volume;

allocating and de-allocating a storage volume to the storage pool in response to a

change to the storage capacity of the storage pool, wherein the storage pool

comprises at least one storage volume allocated as a virtual volume; and

mapping in an incremental log corresponding to the virtual volume a virtual address

assigned to the incremental storage data to a physical storage address of the at

least one storage volume of the storage pool.

13. (Currently Amended) The method of claim 12, further comprising providing incremental snapshot data of a source the primary volume in response to a replication operation.

14. (Currently Amended) The method of claim 12, ~~further comprising monitoring storage availability on the storage volumes~~ wherein changing a storage capacity of the storage pool further comprises alerting a user of a storage over-utilization or under-utilization and changing the storage capacity in response to user input.
15. (Currently Amended) The method of claim 12, ~~wherein allocating storage volumes to a virtual volume comprises assigning a second storage volume to the virtual volume in response to a reduction in available space on a first storage volume~~ further comprising reading data stored in the storage pool by way of a data path independent from a data path used to store the incremental storage data.
16. (Currently Amended) A system for managing incremental storage, the system comprising:
- ~~at least one baseline volume;~~
  - ~~a pool of storage volumes;~~
  - ~~a storage pool management module configured to allocate storage volumes from the pool of storage volumes to a virtual volume; and~~
  - ~~an incremental log corresponding to the virtual volume, the incremental log configured to map a virtual address to a storage address.~~
  - a primary volume;

a baseline volume configured to store a baseline backup copy of data on the primary volume;

a storage pool configured to store incremental storage data from an incremental storage operation on the primary volume in response to changes in data stored on the primary volume after storing the baseline backup copy on the baseline volume, wherein the storage pool comprises at least one storage volume allocated as a virtual volume;

a policy management module configured to set a storage management policy for available storage capacity of a storage pool;

a storage pool management module configured to monitor available storage capacity of the storage pool and to change the storage capacity in response to the storage management policy and the available storage capacity, wherein changing the storage capacity comprises allocating and de-allocating a storage volume to the storage pool in response to the change to the storage capacity; and

an incremental log corresponding to the virtual volume, the incremental log configured to map a virtual address assigned to the incremental storage data to a physical storage address of the at least one storage volume of the storage pool.

17. (Currently Amended) The system of claim 16, further comprising a replication module configured to transmit ~~replicated~~ the incremental data from ~~a source volume to the virtual volume~~ the primary volume to the storage pool.
18. (Currently Amended) The system of claim ~~16~~ 17, wherein the ~~replicated~~ the incremental data comprises incremental snapshot data of the ~~source~~ primary volume.
19. (Currently Amended) The system of claim 16, ~~wherein the storage address comprises a volume identifier and a block identifier~~ wherein  
the primary volume comprises a plurality of primary volumes;  
the storage pool comprises a storage pool corresponding to each primary volume;  
the incremental log comprises an incremental log corresponding to each storage pool;  
and  
the storage pool management module monitors available capacity of each storage pool and allocates and de-allocates storage volumes for each storage pool.
20. (Currently Amended) The system of claim 16, ~~wherein the storage pool management module is further configured to monitor available space on the storage volumes~~ the storage module is further configured to allocate and de-allocate a portion of a storage volume to the storage pool.

21. (Currently Amended) The system of claim 16, ~~further comprising a policy management module configured to control operation of the storage pool management module~~ wherein the baseline volume is part of the storage pool.

22. (Currently Amended) The system of claim 16, ~~wherein the incremental log is further configured to append a storage address mapping in response to a write operation~~ the policy management module resides in a host.

23. (Currently Amended) An apparatus for managing incremental storage, the apparatus comprising:

~~means for allocating storage volumes to a virtual volume~~ monitoring available storage capacity of a storage pool and changing a storage capacity of the storage pool in response to a storage management policy and the available storage capacity, wherein the storage pool is configured to store incremental storage data from an incremental storage operation on a primary volume;

~~means for appending a storage address mapping to an incremental log in response to a write operation~~ allocating and de-allocating a storage volumes to a virtual volume ~~the storage pool in response to a change to the storage capacity of the storage pool, wherein the storage pool comprises at least one storage volume allocated as a virtual volume; and~~



~~means for mapping a virtual address to a storage address in response to a read operation~~  
mapping in an incremental log corresponding to the virtual volume  
a virtual address assigned to the incremental storage data to a physical storage  
address of the at least one storage volume of the storage pool.

24. (Currently Amended) A computer readable storage medium comprising computer readable program code for managing incremental storage, the program code configured to:

~~allocate storage volumes to a virtual volume;~~

~~append a storage address mapping to an incremental log in response to a write operation; and~~

~~map a virtual address to a storage address in response to a read operation.~~

monitor available storage capacity of a storage pool;

change a storage capacity of the storage pool in response to a storage management policy and the available storage capacity, wherein the storage pool is configured to store incremental storage data from an incremental storage operation on a primary volume;

allocate and de-allocate a storage volume to the storage pool in response to a change to the storage capacity of the storage pool, wherein the storage pool comprises at least one storage volume allocated as a virtual volume; and

map in an incremental log corresponding to the virtual volume a virtual address assigned to the incremental storage data to a physical storage address of the at least one storage volume of the storage pool.

25. (Currently Amended) The computer readable storage medium of claim 24, wherein the program code is further configured to provide incremental snapshot data of ~~a source~~ the primary volume in response to a replication operation.

26. (Currently Amended) The computer readable storage medium of claim 24, ~~wherein the program code is further configured to assign a second storage volume to the virtual volume in response to a reduction in available space on a first storage volume~~ further comprising reading data stored in the storage pool by way of a data path independent from a data path used to store incremental data.

27. (Cancelled)

28. (New) A method for deploying a computer readable medium for managing incremental storage, the method comprising:

determining customer requirements for incremental storage;

deploying a storage management program for managing incremental storage, the storage management program comprising

monitoring available storage capacity of a storage pool and changing a storage capacity of the storage pool in response to a storage management policy and the available storage capacity, wherein the storage pool is configured to store incremental storage data from an incremental storage operation on a primary volume;

allocating and de-allocating a storage volume to the storage pool in response to a change to the storage capacity of the storage pool, wherein the storage pool comprises at least one storage volume allocated as a virtual volume; and

mapping in an incremental log corresponding to the virtual volume a virtual address assigned to the incremental storage data to a physical storage address of the at least one storage volume of the storage pool; and

maintaining the storage management program.